

SEMI-ANNUAL TECHNICAL REPORT

March 30, 1977

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INTERNATIONAL BEHAVIOR ANALYSIS:

ANALYTICAL STRATEGIES\*

Sponsored By:

Defense Advanced Research Projects Agency  
ARPA Order No. 2818

ARPA Order No.	2818
Contractor	University of Maryland College Park, Maryland 20742
Effective Date of Contract	October 1, 1976
Expiration Date of Contract	September 30, 1977
Contract Number	N00014-76-C-0153 (Office of Naval Research)
Principal Investigators	Dr. Jonathan Wilkenfeld Dr. Gerald W. Hopple (301) 454-4880

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## SEMI-ANNUAL TECHNICAL REPORT

### INTERNATIONAL BEHAVIOR ANALYSIS: ANALYTICAL STRATEGIES

This report covers the period October 1, 1976 through  
March 31, 1977

This report constitutes the first technical report of year three of the International Behavior Analysis (IBA) Project. The Project's basic goal is to provide a means for producing comparative, empirical generalizations about how, when, and why nations are likely to act, react, and interact.

Three distinct kinds of behavior are being analyzed. First, the identification of sources of national action is a central objective. Nations act externally in response to domestic and/or foreign stimuli. Three domestic (or internal) and two foreign (or external) sources of behavior have been identified. These components (or collections of source factors) include: (1) psychological; (2) political; (3) societal; (4) interstate; and (5) global clusters of determinants.

The second kind of behavior involves the processes of initiative decision-making. How does a nation initiate an external action? That is, after one or more conditions generate a decision occasion, how does the nation respond?

Similar in nature is responsive decision-making. These processes occur when the nation is acted upon. The action of the other nation -- the primary source -- provides the stimulus for a responsive action. The decision-making processes which characterize the formulation of a response constitute the scope of this form of behavior.

In order to explain and predict the sources and processes of international behavior, it is necessary to engage in comparative research. The IBA Project has consequently initiated the task of classifying nations and events.

Year two was devoted to the task of operationalizing the framework which was constructed and refined during year one of research. The framework itself consists of source factors or components, initiative and responsive decision-making processes, and the nation and event classificatory schemes.

The classification of nations extends and refines prior efforts in the fields of comparative and international politics. The IBA nation attributes data set consists of 23 variables for the years from 1966-1970. Economic, capability, and governmental factors are all represented. Data were collected for the 56 states which fulfilled the criterion of having initiated 40 or more international events between 1966 and 1970.

Preliminary findings concerning the nation data set indicate that nations can be compared on the basis of four basic dimensions: economic; capability; governmental; and political stability. The 56 nations can be classified in five categories. The five groupings have been labelled: West; East; Third World; Developing; and Poor. The findings have implications for social scientific and policy relevant research. Further inquiry will be undertaken on the nation data set as well as the other elements of the framework.

The third and current year of research involves the application of various analytical strategies and the testing of models in the field of international behavior analysis. We have already analyzed a portion of the framework, including the societal and interstate components, the impact of the nation typology, and the third major factor, international behavior. We have employed a fairly routine analytical strategy and a much more sophisticated one to determine the relative importance of societal as opposed to interstate factors. Subsequent research will incorporate other types of factors and continue to refine our analytical strategies.

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PART I

## A. INTRODUCTION

The scientific study of foreign policy behavior is a relatively young field of inquiry. While judgments about the theoretical and practical contributions of foreign policy analysis may be premature, we are convinced that the dominant strategies cannot yield results which are reliable, theoretically valid, or policy-relevant.

One strategy involves the testing of specific and ad hoc hypotheses. This approach generates massive propositional inventories (e.g., Vasquez, 1976; McGowan and Shapiro, 1973). However, the failure to anchor hypothesis testing in the context of an overarching framework for analysis generates results which are neither cumulative nor comprehensive. Idiosyncratic researcher interests and data availability determine the selection of topics for investigation.

Competing with the ad hoc hypothesis-testing strategy is the framework-construction approach. While existing frameworks can be critiqued from several vantage points (see Andriole et al., 1975a), perhaps the most damaging criticism is that frameworks are often constructed as impressive conceptual skeletons which lack empirical referents. Frameworks, in other words, are rarely operationalized or converted into testable models.

Neither the propositional inventory nor the framework-construction strategy has produced theoretical or policy-relevant payoffs. Our research endeavor has attempted to synthesize the two approaches in order to construct a framework and actually analyze it. The initial stages entailed a painstaking conceptualization of the realm of inquiry, the construction and subsequent refinement of a comprehensive analytical framework, and the operationalization of variables and the assembly and collection of data. We are currently employing the framework as a map or guide for inquiry, a source of testable hypotheses, and as the foundation for building actual models of foreign policy behavior.

## B. A PRODUCTIVE CONCEPTUAL FRAMEWORK FOR FOREIGN POLICY ANALYSIS

While we are presently in the analytical phase of inquiry, it would be helpful to digress briefly to summarize the preceding conceptualization and operationalization tasks of the Interstate Behavior Analysis Project. The framework which we have constructed and refined organizes the disparate factors which prior research has considered. As an organizational device, the framework imposes coherence on the complexity which characterizes the real world of foreign policy. Simultaneously, the framework is designed to provide a simplified but valid portrait of foreign policy reality.

Perhaps the most fundamental distinction in foreign policy analysis concerns source analysis versus process analysis. The focus in source analysis is on the internal and/or external stimuli which generate foreign policy behavior. A comprehensive array of such determinants or source factors would include five separate clusters: individual; group; state; interstate; and global.

After a state decides to respond to a given set of stimuli, its decision-making machinery is activated. The decision-making process occurs when a state is initiating a foreign policy action (initiative process analysis) or reacting to an action which emanated from another state or international actor (responsive process analysis). Initiative and responsive decision-making inquiry exhaust the scope of process analysis.<sup>1</sup>

### 1. Variable Clusters

The framework consists of three distinct clusters of variables. One cluster -- the independent variables in source analysis -- includes five types of source factors. These types or components include the psychological, political, societal, interstate, and global variable realms.<sup>2</sup>

Static state characteristics comprise the second cluster of variables. We are positing that static attributes such as size and economic development intervene between the source factors and foreign policy behavior. The state typing scheme consists of three classificatory dimensions: economic structure; governmental structure; and capabilities (size, military power, and resource base). The conceptual underpinnings of the state classificatory scheme are discussed in detail in Wilkenfeld (1975).

Foreign policy behaviors constitute the dependent variable cluster (see Andriole, 1975a). Any foreign policy event is comprised of six classificatory dimensions: spatial; temporal; relational; situational; substantial; behavioral.

## 2. The Framework: Variable Interrelationships

A framework for analysis is simply a set of variables and a specification of their expected interrelationships. The framework is presented in Figure 1. As the figure indicates, three clusters of variables comprise the framework.

For source analysis, the independent variables are derived from one or more of the five components. Type of foreign policy behavior is the dependent variable. Type of state is assumed to be the intervening variable cluster. This analytical framework can accommodate both source and process analyses.<sup>3</sup>

## 3. Operationalization<sup>4</sup>

The gap between theory and data in the study of foreign policy is regrettably large (see Hopple, 1975b). Since our framework was constructed with operationalization as an explicit eventual goal, we have attempted to avoid the abstract conceptual excursions which have plagued so many of our predecessors. In other words, we view framework-construction as a bridge to operationalization and data analysis, not as an end in itself.



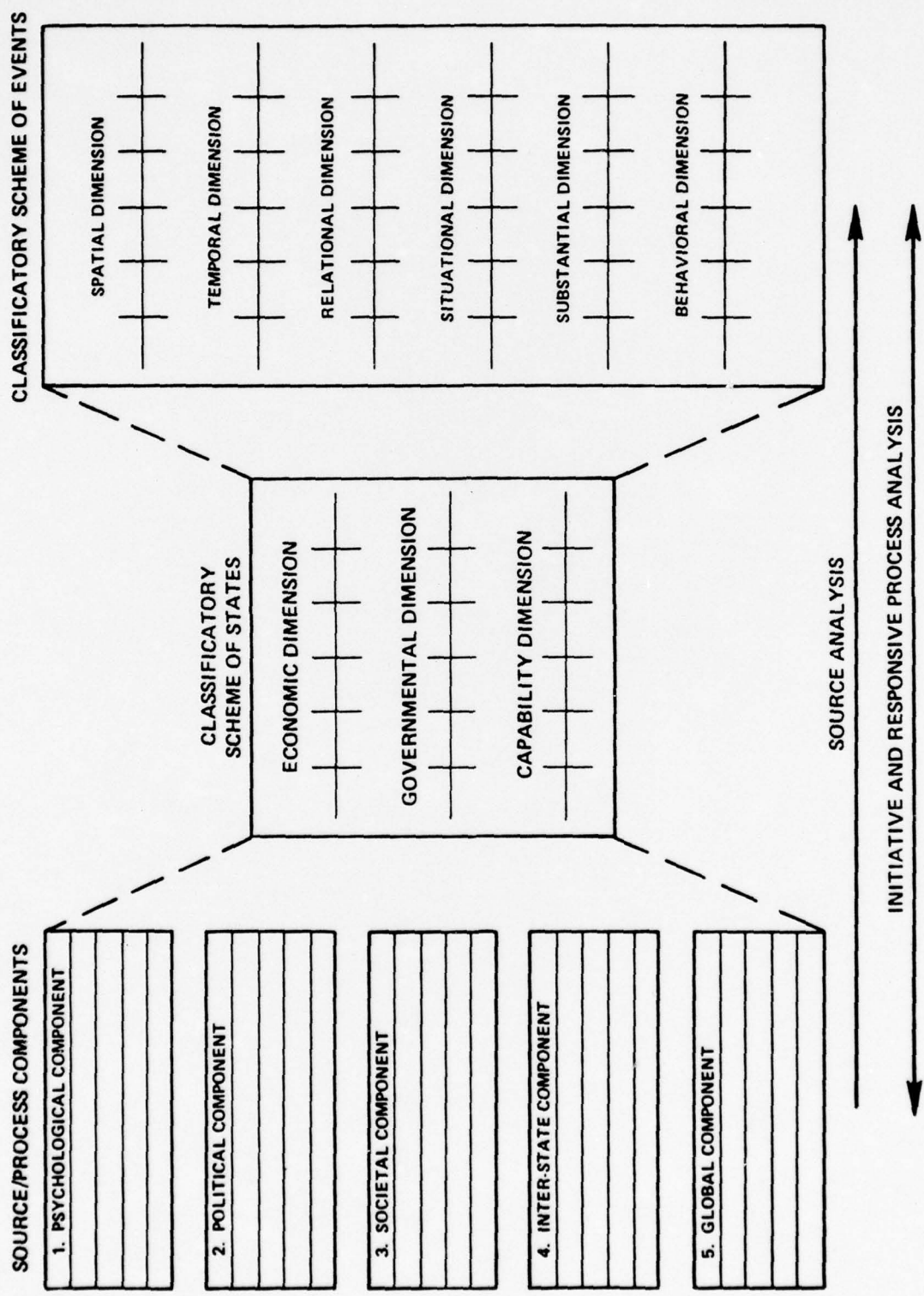


Figure 1  
A FRAMEWORK FOR THE  
COMPARATIVE ANALYSIS OF FOREIGN POLICY BEHAVIOR

Operationalization of the components has elicited considerable attention (see Hopple, 1976d, 1975c; Hopple et al., 1977a; Rossa and Fountain, 1977). We have also amassed a state attributes data set which represents a comprehensive state classification scheme (see Wilkenfeld et al., 1977b; Hopple, 1976b: 6-14). Various analyses of this data set have been reported (see Rossa, 1976; Wilkenfeld and McCauley, 1976; Wilkenfeld et al., 1978). The current data set consists of 23 variables for five years (1966 to 1970) and 56 states. Finally, we have relied on the ARPA-supported WEIS or World Event Interaction Survey events data set.

The conceptualization and operationalization tasks were intentionally conceived as preludes to the third and current task: analysis. The IBA Project is pursuing several analytical strategies in order to generate empirically verified propositions about state actions, reactions, and interactions.

### C. THE RANKING OF SOURCE VARIABLES

#### 1. Research Design

Our initial analytical work was an outgrowth of the perennial debate concerning the relative importance of internal and external determinants of foreign policy behavior (Rosenau, 1966; Rosenau and Ramsey, 1975). As in our other analyses, the WEIS events data set constituted the dependent variable. The independent variables included 11 societal variables (9 domestic instability indicators which clustered into two dimensions, a merchandise balance of payments measure, and rate of population growth) and 4 interstate variables (diplomatic exchange received, non-military conflict received, military conflict received or force, and international involvement). Details on the various independent variables appear in Hopple et al. (1977b).

We employed a fairly straightforward analytical strategy in order to assess the relative importance of the two source variable components and foreign policy behavior. The basic approach involved the investigation of relationships for the total set of 56 states, followed by analyses within each of the five groups which had been generated by Q-factor analysis, i.e., West, East, Third World, Developing, and Poor (see Wilkenfeld et al., 1978).

Initially, we considered the relationships between interstate factors and two measures of foreign policy behavior (i.e., conflict received and international involvement as related to conflict sent). Secondly, we probed the relationships between societal variables and foreign policy behavior. Finally, the predicted values generated by these two regression analyses were entered into a regression equation which predicted foreign policy behavior; this provided a preliminary estimate of relative potency. The overall research design is depicted in Figure 2.

## 2. Results

The results for the separate analyses, which are reported in detail elsewhere (see Hopple et al., 1977b), demonstrated that societal factors were weakly related to the dependent variables whereas interstate factors exhibited strong relationships to foreign behavior. The most significant findings emerged from the relative potency assessment.

Table 1 reports these results. Our strategy involved the development of a single indicator for each of the two components, based on the combined effects of all variables within the cluster. Results in their aggregated form (the span from 1966-1970) are presented; we also generated results for each of the five years.

The interstate realm is clearly the key predictor of both diplomatic exchange and non-military conflict. Societal factors are significant only for the Developing group and the non-military conflict factor.

FIGURE 2

Summary of Research Design

Independent Variables

<u>Societal Component</u>
1. Governmental Instability
2. Societal Unrest
3. Merchandise Balance of Payments
4. Population Growth Rate

<u>Interstate Component</u>
1. Diplomatic exchange received
2. Non-military conflict received
3. Military conflict received
4. International involvement

Intervening Variables

1. Western Group
2. Eastern Group
3. Third World Group
4. Development Group
5. Poor Group

Dependent Variables

1. Diplomatic exchange sent
2. Non-military conflict sent



TABLE 1

Interstate Versus Societal Predictors of Foreign Policy Behavior<sup>a</sup>

	Interstate Component	Societal Component	R <sup>2</sup>
<u>Total Group</u>			
Diplomatic Exchange	.95*	.01	.92*
Non-Military Conflict	.81*	.03	.67*
<u>Western Group</u>			
Diplomatic Exchange	.99*	-.01	.96*
Non-Military Conflict	.91*	-.04	.79*
<u>Eastern Group</u>			
Diplomatic Exchange	.99*	-.01	.96*
Non-Military Conflict	.80*	.11	.76*
<u>Third World Group</u>			
Diplomatic Exchange	.96*	-.08	.87*
Non-Military Conflict	.82*	.10	.75*
<u>Developing Group</u>			
Diplomatic Exchange	.88*	.09	.88*
Non-Military Conflict	.65*	.25*	.72*
<u>Poor Group</u>			
Diplomatic Exchange	.94*	-.02	.87*
Non-Military Conflict	.78*	.03	.64*

a - Numbers in first two columns are beta weights.

\* - Beta or R significant at the .05 level.

Generally, grouping states (i.e., treating state type as an intervening variable cluster) does not exert an impact of any real magnitude.

#### D. THE RANKING OF SOURCE VARIABLES: A MORE SOPHISTICATED STRATEGY

##### 1. Research Design

We have employed a much more sophisticated strategy in an effort to provide further illumination about the relative potency issue (see Wilkenfeld et al., 1977a). We utilized the same societal data set, but generated some new measures of international involvement (total value of merchandise trade, indices of energy dependency, food dependency index, neo-colonial dependency index, export dependency index, and import dependency index).

We also factor analyzed the WEIS behavior sent data and behavior received data for the 1966 to 1970 span. The results of the behavior sent realm were almost identical with Young's (1975) earlier factor analysis of a comparable subset of the WEIS data. For behavior received, a single dominant factor explained 58 percent of the total variance. A second factor, with a high loading for force, explained 12 percent of the total variance. The third factor consisted of "yield" and "reward."

The analytical strategy involved the application of recent methodological developments in causal modeling (see McCauley, 1976; Adelman et al., 1975; Mood, 1971; Wold, 1974, 1975). Since details on the strategy are provided elsewhere (see Wilkenfeld et al., 1977a), here we shall simply provide an abbreviated overview of the procedure.

Central to this strategy is the concept of the latent variable, which is an unobserved stand-in for a block of variables. Latent variables are specified as linear combinations of the manifest or observed variables.

Since the predictor relations for fitting the latent variable model to the measurable involve not only unknown parameters but also unknown variables, the problem of estimation becomes nonlinear (Wold, 1974: 71). The nonlinearity problem can be solved through an iterated series of estimations. The linearity of the model specification permits the application of ordinary least squares to each predictor relation. Each regression provides proxy estimates for a subset of the unknown parameters and latent variables; these estimates are employed in subsequent steps to calculate new proxy estimates (Wold, 1974: 71). Wold refers to this cyclic procedure as NIPALS - Nonlinear Interactive Partial Least Squares.

Figure 3 provides a visual representation of a NIPALS model of foreign policy. Endogenous variables -- these determined by the model -- are represented as circles; exogenous or unexplained variables appear as squares. There are three blocks of manifest variables (S or societal, I or interstate, and F or foreign behavior). The latent variables are  $S^*$  (the societal forces as derived from observables  $S_1$  to  $S_i$ ),  $I^*$  (derived from observables  $I_1$  to  $I_j$ ), and  $F^*$  (derived from observables  $F_1$  to  $F_k$ ). Figure 4 illustrates the NIPALS model as applied to the IBA framework.

We assumed that the effects of the components were mediated by state type, defined by the four power and structural dimensions which emerged from earlier factor analyses of the state data set (see Wilkenfeld et al, 1978). The mechanics of the procedure for incorporating state type are described in detail in Appendix B of Wilkenfeld et al. (1977a). It should be noted that the control procedure here differs from Hopple et al. (1977b) in that we directly control continuous dimensions; this permits the estimation of model parameters unique to each state based on its typological characteristics.

FIGURE 3  
Generalized NIPALS Model

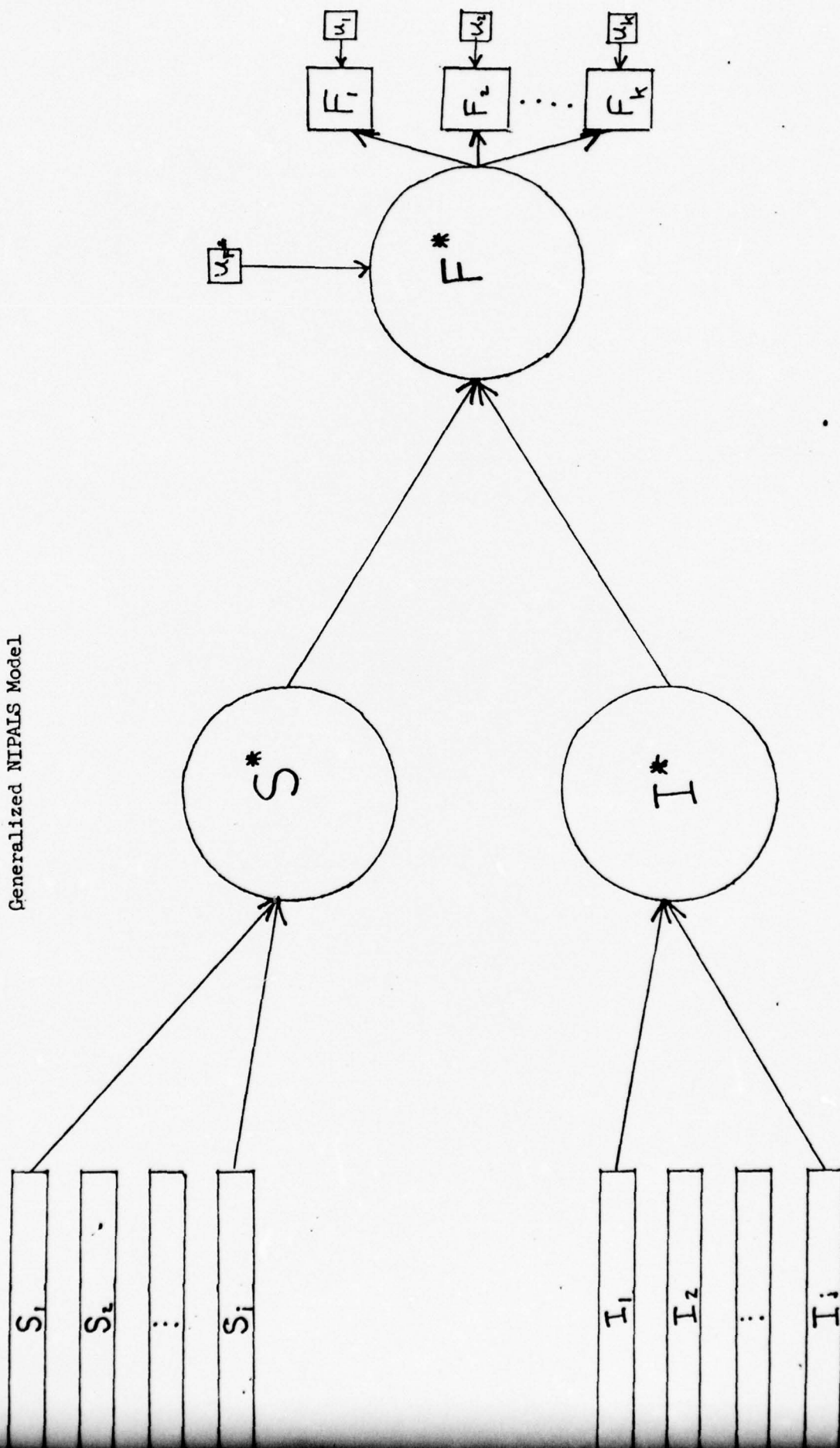
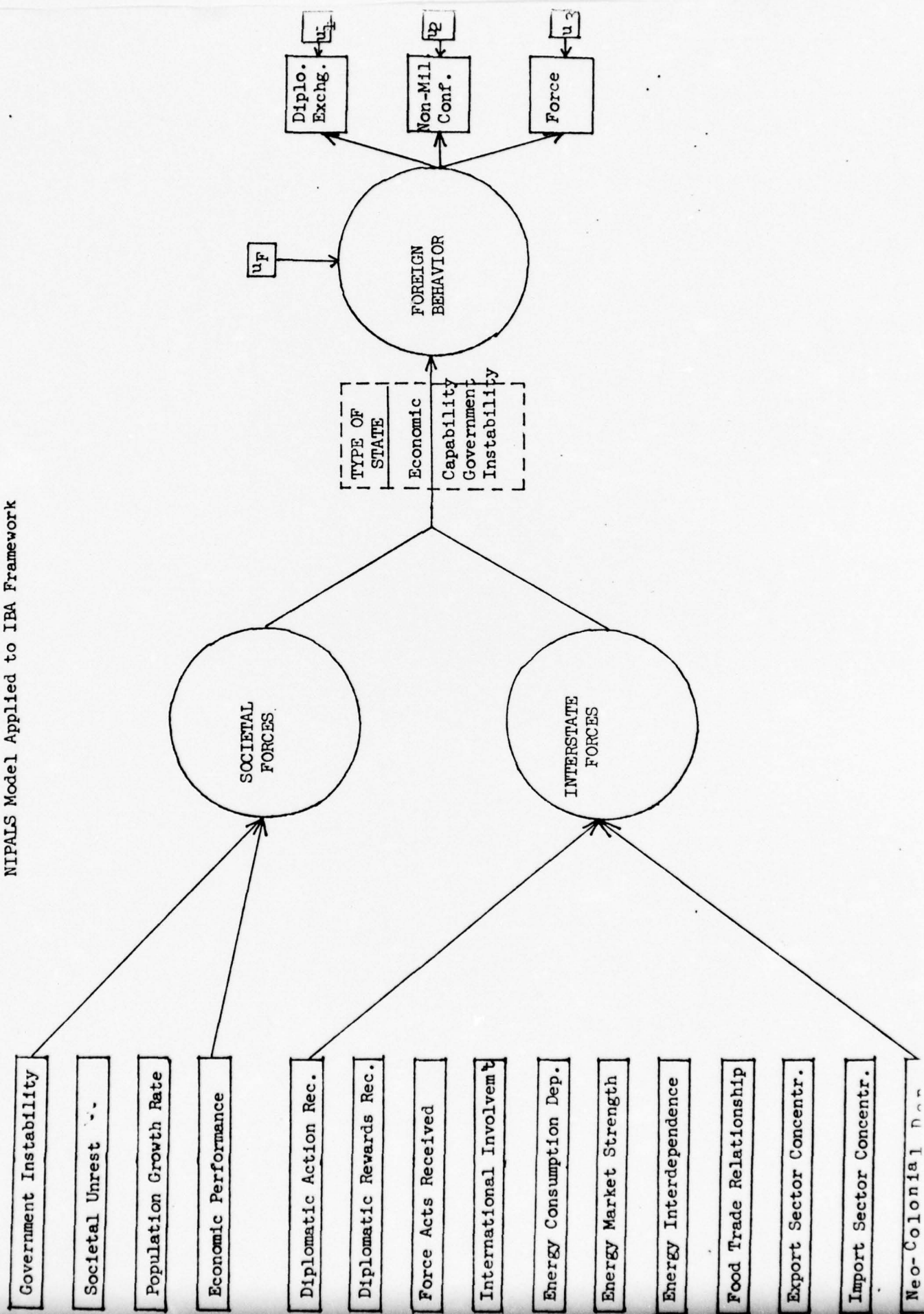




FIGURE 4

NIPALS Model Applied to IBA Framework



## 2. Results

The findings appear in Figure 5. Four iterations were required; each resulted in more refined sets of parameter estimates. The major findings are summarized below.

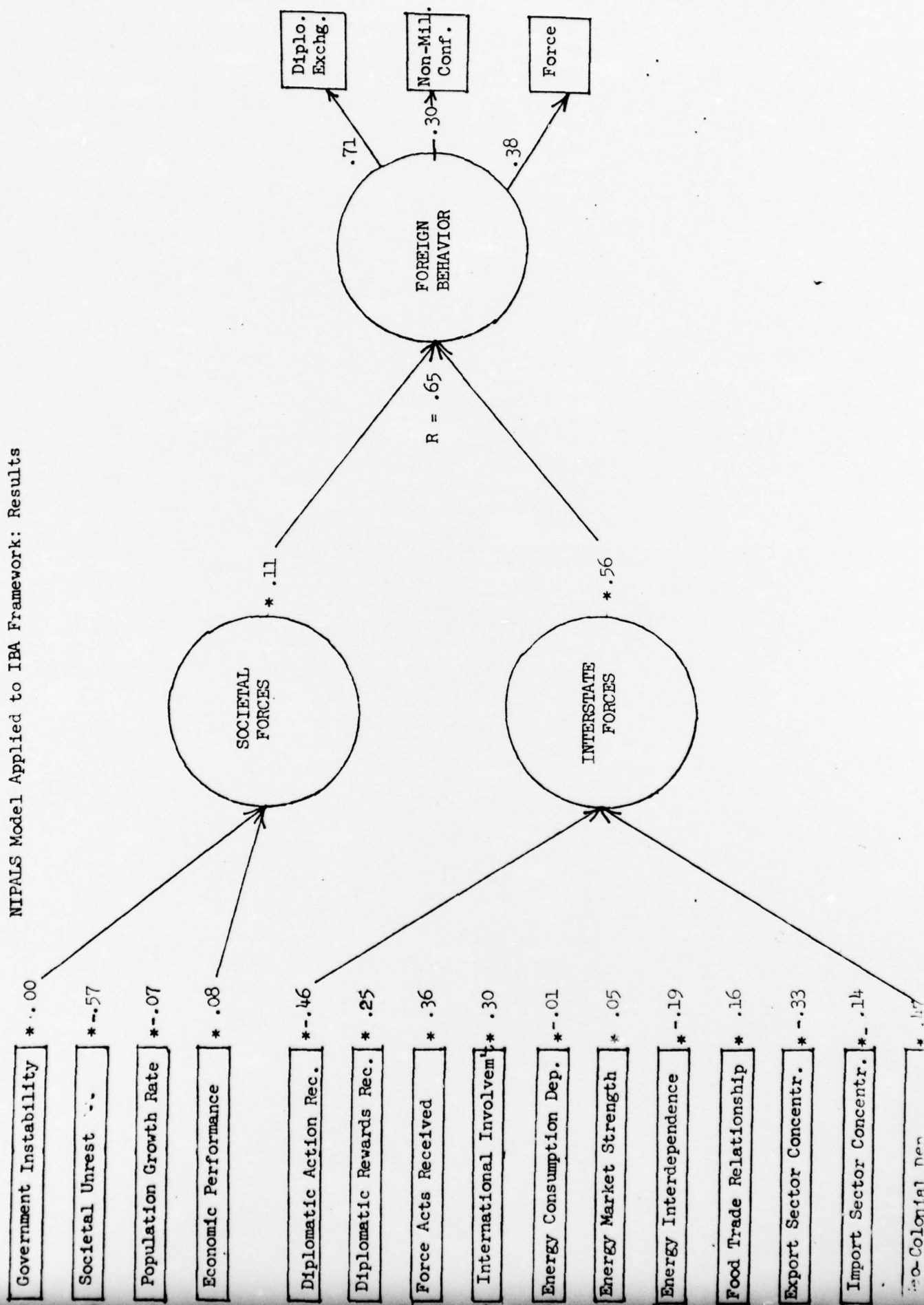
1. The Foreign Behavior latent variable is highly related to diplomatic activity sent, and less related to the non-military conflict sent and force sent dimensions.
2. Interstate forces in general are more potent predictors of Foreign Behavior than Societal forces in general. The final beta (correlation) of .56 for Interstate is five times the size of the beta of .11 for Societal.
3. Within the interstate component, assuming a constant value for state typology control, the two most potent variables are reception of diplomatic activity (a behavior received factor) and the neocolonialism index (with extreme colonial relationships involving the importing of unrefined material and exporting of industrial goods).
4. Within the societal component, again assuming a constant value for state typology control, the most potent variable is societal unrest (riots, demonstrations, and general strikes). However, the influence of societal unrest on foreign behavior is negligible.

## E. CONCLUSION

These findings have obvious relevance to theoretical social scientists who study foreign policy scientifically. In the context of an overarching framework, we have begun to accrue an inventory of propositions. The use of increasingly sophisticated strategies to analyze the same problem enhances cumulativeness and strengthens our confidence in the results. We have continued to work on the problem of devising analytical strategies (see Hopple et al.,

FIGURE 5

NIPALS Model Applied to IBA Framework: Results



1977c; Rossa, 1977).

We also contend that this type of inquiry yields findings which are relevant to policy-makers. For example, we could predict a state's latent foreign behavior variable. Our data set for 1966 to 1970 could be used to "predict" or forecast behavior for the 1970 to 1975 period. In effect, the parameters could be viewed as an indicator system, which could be utilized to develop a forecasting capability for foreign behavior.

We are assuming that practical payoffs could be derived from our research. At the least, theoretical research provides a solid foundation for applied research. Furthermore, the dichotomy between basic and applied research can be overemphasized. "Good" basic research is not necessarily abstract and irrelevant. Such research can interface with "good" policy research.



NOTES

\*We are indebted to a number of individuals for providing advice or assistance of various forms. Dorette Feit, Merle Feldbaum, Lilymae Fountain, and Helene Rubinstein have rendered valuable assistance to the Project. Nancy Hett has graciously and competently met this and other typing deadlines. We extend our gratitude to Arthur Banks of the Center for Comparative Political Research at the State University of New York at Binghamton for providing us with substantial amounts of data. Both Stephen J. Andriole and Robert A. Young of the Advanced Research Projects Agency have offered excellent advice and continuous encouragement. We absolve all of the above from and accept the responsibility for any errors of fact or interpretation.

<sup>1</sup>The concepts of source analysis and process analysis were introduced in Andriole et al. (1975b); see also Hopple (1975e).

<sup>2</sup>For details on the various components, see Andriole (1975c, 1975d); Hopple (1976b, 1975a, 1975c, 1975d, 1974a, 1974b).

<sup>3</sup>The discussion here is limited to source analysis; on process analysis, see Hopple (1976b: 5).

<sup>4</sup>For details, see Hopple (1976a).

REFERENCES

- ADELMAN, I., A. ABRAHAMSSON, B. ARESKOG, L.O LORENTSON, and J. WALLMYR  
(1975) "Applications of Methods I-II to Adelman-Morris's Data." In  
H. Wold (ed.) "Modeling in Complex Situations with Soft Information."  
Presented at the Third World Congress of Econometrics, Toronto,  
Canada, August 21-26.
- ANDRIOLE, S. J. (1975a) "Conceptualizing the Dimensions of Interstate Behavior."  
Presented at the Southwestern Political Science Association Annual  
Meeting, San Antonio, Texas, March (IBA Research Report #8).
- \_\_\_\_ (1975b) "General Coding Instructions: Typology of States." IBA Research  
Report #14.
- \_\_\_\_ (1975c) "Global Systemic Variables and the Comparative Study of Foreign  
Policy." IBA Research Report #6.
- \_\_\_\_ (1975d) "Interstate Realities and the Conduct of Foreign Policy." IBA  
Research Report #5.
- \_\_\_\_, J. WILKENFELD, and G. W. HOPPLE (1975a) "A Framework for the Comparative  
Analysis of Foreign Policy Behavior." International Studies Quarterly 19  
(June): 160-198.
- \_\_\_\_ (1975b) "The Sources & Processes of Foreign Policy Behavior: A Panoramic  
Conceptualization." Paper presented at the International Studies  
Association Annual Meeting, Washington, D.C., February.
- HOPPLE, G. W. (1976a) "International Behavior Analysis: The Operationalization  
Task." IBA Semi-Annual Technical Report.
- \_\_\_\_ (1976b) "International Behavior Analysis: Preliminary Findings." IBA  
Semi-Annual Technical Report.
- \_\_\_\_ (1976c) "Public Opinion Foreign Policy: The Empirical and Prescriptive  
Utility of the Lasswell Decision Model." Paper presented at the  
International Studies Association Annual Meeting, Toronto, February.
- \_\_\_\_ (1976d) "Societal Factors in the Comparative Study of Interstate Behavior:  
An Operational Formulation." IBA Research Report #18.
- \_\_\_\_ (1975a) "Comparative Foreign Policy: Determinants of Action and Reaction."  
IBA Research Report #11.
- \_\_\_\_ (1975b) "The Comparative Study of Foreign Policy and the 'Data Gap'  
Problem: An Interim Report." IBA Research Report #13.
- \_\_\_\_ (1975c) "Psychological Sources of Foreign Policy Behavior: The Belief  
Systems Approach and Content Analysis." IBA Research Report #16.
- \_\_\_\_ (1975d) "The Societal Component and the Comparative Study of Foreign  
Policy." IBA Research Report #4.
- \_\_\_\_ (1975e) "The Sources and Processes of International Behavior: An Explicit  
Conceptualization With a View Toward Analysis." IBA Working Paper #4.

- \_\_\_\_ (1974a) "Internal Political Variables and the Comparative Study of Foreign Policy: A Framework for Research and Analysis." IBA Research Report #3.
- \_\_\_\_ (1974b) "The Psychological Component and the Comparative Study of Foreign Policy Behavior: Issues, Strategies, and Problems of Operationalization." IBA Research Report #2.
- HOPPLE, G. W., J. WILKENFELD, and P. J. ROSSA (1977a) "Societal Determinants of Foreign Policy Behavior." IBA Data Package #2.
- \_\_\_\_ and R. N. McCAULEY (1977b) "Societal and Interstate Determinants of Foreign Conflict: From Framework to Partial Model." Jerusalem Journal of International Relations (Fall).
- \_\_\_\_ (1977c) "Societal, Interstate, and Global Inputs to Foreign Policy Behavior: Assessing, Relative Potencies." To be presented at the Midwest Political Science Association Annual Meeting, Chicago, April (IBA Research Report #28).
- McCAULEY, R. N. (1976) "Analytic Strategies in the Comparative Study of Interstate Behavior: Some Preliminary Thoughts." IBA Research Report #19.
- McGOWAN, P. J. and H. SHAPIRO (1973) The Comparative Study of Foreign Policy: A Survey of Scientific Findings. Beverly Hills: Sage.
- MOOD, A. M. (1971) "Partitioning Variance in Multiple Regression Analyses as a Tool for Developing Learning Models." American Educational Research Journal 8 (March): 191-202.
- ROSENAU, J. N. (1966) "Pre-Theories and Theories of Foreign Policy," pp. 27-93 in R. B. Farrell (ed.) Approaches to Comparative and International Politics. Evanston, Illinois: Northwestern University Press.
- \_\_\_\_, and G. RAMSEY (1975) "External Vs. Internal Sources of Foreign Policy Behavior," pp. 245-262 in P. J. McGowan (ed.) Sage International Yearbook of Foreign Policy Studies, Vol. III. Beverly Hills: Sage.
- ROSSA, P. J. (1977) "Basic Assumptions and Analytical Frameworks in Explanations of Foreign Policy." IBA Research Report #26.
- \_\_\_\_ (1976) "A Q-Factor Analysis of the State Attribute Domain." IBA Research Report #24.
- \_\_\_\_ and L. FOUNTAIN (1977) "The Interstate Component: Data and Indices." IBA Research Report #29.
- VASQUEZ, J. A. (1976) "Statistical Findings in International Politics: A Data-Based Assessment." International Studies Quarterly, 20 (June): 171-218.



WILKENFELD, J. (1975) "Comparative Foreign Policy: A Typology of States." IBA Research Report #7.

\_\_\_\_\_, and R.N. McCAULEY (1976) "A Preliminary Factor Analytic Exploration of the State Attribute Domain." IBA Research Report #17.

WILKENFELD, J., G. W. HOPPLE, P. J. ROSSA, and R. N. McCAULEY (1977a) "Action-Reaction, and Societal Explanations: Testing a Partial Model of Interstate Behavior." Presented at the International Studies Association Annual Meeting, St. Louis, March, IBA Research Report #27.

WILKENFELD, J., G. W. HOPPLE, and P. J. ROSSA (1977b) "Structural Characteristics of States." IBA Data Package #1.

WILKENFELD, J., G. W. HOPPLE, S. J. ANDRIOLE, and R. N. McCAULEY (1978) "Profiling States for Foreign Policy Analysis." Comparative Political Studies (Spring).

WOLD, H. (1975) "Methods II: Path Models with Latent Variables as Proxies for Blocks of Manifest Variables." In H. Wold (ed.) "Modelling in Complex Situations with Soft Information." Paper presented at the Third World Congress of Econometrics, Toronto, Canada, August 21-26.

\_\_\_\_\_, (1974) "Causal Flows with Latent Variables: Partings of the Ways in the Light of NIPALS Modelling." European Economic Review 5 (June): 67-86.

YOUNG, R. A. (1975) "A Classification of Nations According to Foreign Policy Output," in E. Azar and J. Ben-Dak (eds.) International Interactions: Theory and Practice of Events Analysis. London: Gordon and Breach.



PART II

## II. PAPERS

### A. RESEARCH REPORTS

IBA Research Report #1: Stephen J. Andriole, Jonathan Wilkenfeld, and Gerald W. Hopple, "A Framework for the Comparative Analysis of Foreign Policy Behavior," International Studies Quarterly, June, 1975.

IBA Research Report #2: Gerald W. Hopple, "The Psychological Component and the Comparative Study of Foreign Policy Behavior: Issues, Strategies, and Problems of Operationalization."

IBA Research Report #3: Gerald W. Hopple, "Internal Political Variables and the Comparative Study of Foreign Policy: A Framework for Research and Analysis."

IBA Research Report #4: Gerald W. Hopple, "The Societal Component and the Comparative Study of Foreign Policy."

IBA Research Report #5: Stephen J. Andriole, "Interstate Realities and the Conduct of Foreign Policy."

IBA Research Report #6: Stephen J. Andriole, "Global Systemic Variables and the Comparative Study of Foreign Policy."

IBA Research Report #7: Jonathan Wilkenfeld, "Comparative Foreign Policy: A Typology of States," presented at the Southwestern Political Science Association Annual Meetings, San Antonio, Texas, March 26-29, 1975.

IBA Research Report #8: Stephen J. Andriole, "Conceptualizing the Dimensions of Interstate Behavior," presented at the Southwestern Political Science Association Annual Meetings, San Antonio, Texas, March 26-29, 1975.

IBA Research Report #9: Stephen J. Andriole, Jonathan Wilkenfeld, and Gerald W. Hopple, "The Sources and Processes of Foreign Policy Behavior: A Panoramic Conceptualization," presented at the International Studies Association, Annual Meeting, Washington, D.C., February, 19-22, 1975.

IBA Research Report #10: Gerald W. Hopple, "Public Opinion and the Comparative Study of Foreign Policy."

IBA Research Report #11: Gerald W. Hopple, "Comparative Foreign Policy: Determinants of Action and Reaction," presented at the Southwestern Political Science Association Annual Meeting, San Antonio, Texas, March 26-29, 1975.

IBA Research Report #12: Stephen J. Andriole, "Foreign Policies of Scarcity: Some Implications for Research and Analysis," presented at the International Studies Association, Annual Meeting, Washington, D.C., February 19-22, 1975.

IBA Research Report #13: Gerald W. Hopple, "The Comparative Study of Foreign Policy and the 'Data Gap' Problem: An Interim Report."

IBA Research Report #14: Stephen J. Andriole, "General Coding Instructions: Typology of States."

IBA Research Report #15: Stephen J. Andriole, "The Comparative Study of Foreign Policy: En Route to a Productive Conceptual Framework."

IBA Research Report #16: Gerald W. Hopple, "Psychological Sources of Foreign Policy Behavior: The Belief Systems Approach and Content Analysis."

IBA Research Report #17: Jonathan Wilkenfeld and Robert N. McCauley, "A Preliminary Factor Analytic Exploration of the State Attribute Domain."

IBA Research Report #18: Gerald W. Hopple, "Societal Factors in the Comparative Study of Interstate Behavior: An Operational Formulation."

IBA Research Report #19: Robert N. McCauley, "Analytic Strategies in the Comparative Study of Interstate Behavior: Some Preliminary Thoughts."

IBA Research Report #20: Gerald W. Hopple, "International Behavior Analysis: The Interface Between the Conceptual and Operational Phases of Research."

IBA Research Report #21: Gerald W. Hopple, "Foreign Policy, Public Opinion, Social Science, and Policy-Relevance: Exploring the Linkages."

IBA Research Report #22: Gerald W. Hopple, "Events Data, the Bureaucratic Politics Perspective, and the Political Component."

IBA Research Report #23: Jonathan Wilkenfeld, Gerald W. Hopple, Stephen J. Andriole, and Robert N. McCauley, "Profiling States for Foreign Policy Analysis: Preliminary Findings," presented at the American Political Science Association, Annual Meeting, Chicago, September, 1976.

IBA Research Report #24: Paul J. Rossa, "A Q-Factor Analysis of the State Attribute Domain."

IBA Research Report #25: Gerald W. Hopple, Jonathan Wilkenfeld, Paul J. Rossa, and Robert N. McCauley, "Frameworks and Analytic Strategies in the Study of Foreign Policy," presented at the Southern Political Science Association, Annual Meeting, Atlanta, November, 1976 (also forthcoming in a revised version, Jerusalem Journal of International Relations, Fall, 1977).

IBA Research Report #26: Paul J. Rossa, "Basic Assumptions and Analytical Frameworks in Explanations of Foreign Policy."

IBA Research Report #27: Jonathan Wilkenfeld, Gerald W. Hopple, Paul J. Rossa, and Robert N. McCauley, "Action-Reaction, Societal, and Economic Explanations: Testing a Partial Model of Interstate Behavior," presented at the International Studies Association, Annual Meeting, St. Louis, March, 1977.



IBA Research Report #28: Gerald W. Hoppie, Jonathan Wilkenfeld and Paul J. Rossa, "Societal, Interstate, and Global Inputs to Foreign Policy Behavior: Assessing Relative Potencies," to be presented at the Midwest Political Science Association, Annual Meeting, Chicago, April, 1977.

IBA Research Report #29: Paul J. Rossa and Lilymae Fountain, "The Interstate Component: Data and Indices."

#### B. WORKING PAPERS

IBA Working Paper #1: Stephen J. Andriole, "International Behavior Analysis and the Perennial Problems of Political Inquiry."

IBA Working Paper #2: Gerald W. Hoppie, "The Psychological Component and the Comparative Study of Foreign Policy: The 'Relative Irrelevance' of Two Types of Sources."

IBA Working Paper #3: Stephen J. Andriole, "The Definition, Conceptualization, and Classification of Foreign Policy: Pacifying a Few Exasperating Analytical Issues."

IBA Working Paper #4: Gerald W. Hoppie, "The Sources and Processes of International Behavior: An Explicit Conceptualization With a View Toward Analysis."

IBA Working Paper #5: Stephen J. Andriole, "The Informational Needs of Foreign Policy-Makers and the IBA Project: Some First Thoughts."

IBA Working Paper #6: Paul J. Rossa, "Typologizing: A Research Memorandum."

#### C. DATA PACKAGES

IBA Data Package #1: Jonathan Wilkenfeld, Gerald W. Hoppie, and Paul J. Rossa, "Structural Characteristics of States."

IBA Data Package #2: Gerald W. Hoppie, Jonathan Wilkenfeld, and Paul J. Rossa, "Societal Determinants of Foreign Policy Behavior."



PART III

### III. REPORT SUMMARY

#### A. Technical Problems

The International Behavior Analysis (IBA) Project has constructed, refined, and operationalized a comprehensive overarching framework for describing and explaining international behavior. The current research year involves the application of various analytical strategies in order to generate empirical propositions and theoretical explanations.

#### B. General Methodology

The IBA Project's commitment to diverse methodologies has remained paramount. We have assembled various types of data and are currently employing an array of analytical strategies.

#### C. Technical Results

The first year of research involved the construction and refinement of the basic, overarching framework. Five source-process and two classificatory schemes (nations and international actions) were conceptualized (see Part I, Section I-B-1). Fundamental interrelationships were also specified (see Part I, Section I-B-2). The second contract year involved the intervening tasks of operationalization and data assembly (see Part I, Section I-B-3).

The third and current year involves various analyses of the framework. Preliminary results and a brief discussion of salient analytical strategies are provided in Part I, Sections I-C and I-D.

#### D. Implications for the Future

The IBA has already constructed an analytical framework which represents a superior vehicle when it is compared with competing frameworks. Furthermore, the framework has been designed to be more than an abstract conceptual exercise. Unlike most frameworks, then, the source-process component framework will be operationalized and tested.

The framework has proved to be conceptually stimulating and empirically productive. A key implication for future research is the versatility of the framework. The framework can be employed for a diverse array of scientific and policy-relevant purposes. Among these are the functions of directing inquiry, organizing previous research, and suggesting future research. The framework can also be adapted for research with direct relevance to the policy community. An example is the potential applicability to inquiry on various crisis situations.

Analysis is the final goal of the IBA Project. Strategies are already being devised for the implementation of this task. The specific objectives of the third year are listed below.

#### Primary and Subsidiary Tasks of Year 3: Analysis

- (1) Development of analytical strategies.
- (2) Application of analytical strategies.
- (3) Dissemination of results.

A comprehensive framework for describing and analyzing international behavior has been constructed and refined. Interrelationships between certain factors have been posited within two contexts: international source and decision-making behavior, and different situations and nations.

Each factor has been converted into an actual variable. Data have been assembled for the various factors which pertain to source analysis and process analysis: (1) psychological; (2) political; (3) societal; (4) interstate; and (5) global. Nations have been classified on the basis of three dimensions: (1) economic; (2) governmental; and (3) capability. Data have already been assembled for 56 nations for the period from 1966 to 1970. The ARPA-supported World Event Interaction Survey comprises the events data set.

Year Three is being devoted to the final and crucial task of analysis. Preliminary analyses have already been conducted. The framework is being used as a source of testable hypotheses and as a guide for model-building.

While the IBA Project will complete the construction, refinement, and analysis of the framework, other researchers can employ the framework for both basic research (e.g., theoretical inquiry) and policy-relevant research (e.g., crisis analysis).



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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) International Behavior Analysis: Analytical Strategies		5. TYPE OF REPORT & PERIOD COVERED Semi-Annual Technical Report October 1, 1976 to March 31, 1977
7. AUTHOR(s) Hipple, Gerald W. / Hipple Wilkenfeld, Jonathan / Wilkenfeld Rossa, Paul J. / Rossa		6. PERFORMING ORG. REPORT NUMBER 1 Oct 76-21 12077 8. CONTRACT OR GRANT NUMBER(s) N00014-76-C-0153 ABPA Order - 2818
9. PERFORMING ORGANIZATION NAME AND ADDRESS University of Maryland Department of Government and Politics (IBA Project) College Park, Maryland 20742		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Defense Advanced Research Projects Agency 1400 Wilson Boulevard, Arlington, VA. 22209		12. REPORT DATE March 1977 13. NUMBER OF PAGES 18
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Office of Naval Research (Code 452) Arlington, VA 22217		15. SECURITY CLASS. (of this report) Unclassified 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <b>DISTRIBUTION STATEMENT A</b>            Approved for public release;            Distribution Unlimited         </div>		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) <p>The objective of the International Behavior Analysis (IBA) Project is to construct and analyze an analytical framework which can provide insight into the actions and interactions of certain states in certain situations. The Project's emphasis is comparative and the central goals are the generation of verified findings and the identification of salient patterns about international behavior.</p>		

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